

11-22-05

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII

PUBLIC UTILITIES
COMMISSION

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PUBLIC UTILITIES COMMISSION) DOCKET NO. 03-0372
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Instituting a Proceeding to Investigate)
Competitive Bidding for New Generating)
Capacity in Hawaii.)
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HAWAII RENEWABLE ENERGY ALLIANCE
RESPONSE TO HECO INFORMATION REQUESTS
ON
HREA'S FINAL STATEMENT OF POSITION
AND
CERTIFICATE OF SERVICE

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I. INTRODUCTION AND SUMMARY

In accordance with Public Utilities Commission's (PUC's) Prehearing Order No. 20923, dated April 23, 2004, the Hawaii Renewable Energy Alliance (HREA) hereby submits our response to the Final Information Requests (FIRs), submitted by HECO on October 18, 2005, regarding our Final Statement of Position (FSOP) dated August 12, 2005.

II. HREA's Response to HECO Final Information Requests

HECO/HREA-FIR-1 Ref: HREA Final SOP, page 8.

- a. Please explain how system efficiency will improve over time if there is a shift away from Central Generation and Decentralized Central Generation to Distributed Generation.**

HREA Response: HREA would first like to put HECO's question into context by reviewing the discussion of system efficiency on page 8, which reads as follows:

"Improved system efficiency. System efficiency will improve over time if new DG, DCG and CG have higher operating efficiencies than existing power plants. The improvements in system efficiency will translate to lower lifecycle costs and potentially lower utility rates. This trend will be enhanced, if there is a shift away from CG and DCG to DG. However, HREA anticipates that efficiency gains in new fossil CG, DCG and supply-side DG would likely be off-set by increased fuel costs."

Second, system efficiency needs to be defined,¹ as HREA is not aware of a HECO definition for system efficiency, and HREA has not previously defined system efficiency.

¹ For example, HECO has not defined system efficiency in Appendix A of its third round IRP.

Therefore, for the purpose of this docket, HREA defines system efficiency to be the ratio of electricity delivered to customers to the energy content of all fuels used in generation on the system (i.e., delivered electricity divided by the energy content of the fuels). Generation includes central generation (CG), decentralized central generation (DCG) and distributed generation (DG). DG includes systems sited on both sides of the customer meter, and customer-sited DG includes both renewable (such as wind and solar), Combined Heat and Power (CHP) systems, and other small-scale, conventional (fossil-fired) generators, such as stand-by diesel-electric generators.

Given the above definition, system efficiency will increase:

1. with the reduction of line losses from CG units as more loads are met with DGs located closer to loads, i.e., system efficiency will increase with less system losses;
2. when the efficiency of DGs is higher compared to the efficiency of existing, conventional CG units (CGs). This will clearly be the case for Combined Heat and Power (CHP) systems that can operate in excess of 80% efficiency, while typical CGs operate at about 30%. Of course, some CGs, such as newer combined cycle plants, will have higher efficiencies, perhaps as high as 50%, but clearly less than the efficiencies of CHPs. See Appendix A for an assessment of positive impacts of DG on system efficiency by Scheibert Energy Company (SECO); and
3. when the least efficient CG on the system are replaced by more efficient DGs. For example, a CG unit with 30% efficiency would have net efficiency of 25%, assuming line losses of 5%.

Note: HREA does recognize that there might be periods when the system efficiency might drop, e.g., as DG is installed, certain CGs may operate at less than optimum, less-efficient power settings. However, we believe the net long-term benefit of more DG will be higher system efficiency, as an optimum ratio of DG to CG is reached.

b. Please provide copies of all studies, reports, or other documentation supporting such a conclusion.

HREA Response: To date, HREA has been able to identify two relevant studies. First, WSB-Hawaii, in collaboration with Tom Loudat and Associates (TLA), conducted a study of renewables in Hawaii for the Hawaii Energy Policy Forum.² This study provides an indirect argument in support of our conclusion that system efficiency will be improved with more DG. As part of the study, TLA investigated the impacts of increasing the use of DG on HECO's Oahu grid.³ Efficiency was measured directly in terms of dollars (\$) spent to meet the energy demand, and it was found that the cost for DG was less and thus more efficient.

Second, SECO has studied impacts of a number of their DG installations on HECO's grid that have included some dramatic improvements in power quality, which have resulted in some direct improvements in system efficiency, as well as implications about the impacts from further DG installations on HECO's grid. See Appendix A for SECO's assessment.

c. Please provide specifics regarding the efficiency of the technologies assumed for each generation category defined above.

HREA Response: See the response to part a.

² A Study of Renewable and Unconventional Energy in Hawaii, WSB-Hawaii, Kaneohe, HI, November 19, 2003.
See: <http://hawaiienergypolicy.hawaii.edu/papers/bollmeier.pdf>.

³ *Ibid*, Appendix L.

HREA states that the likely result of competitive bidding will be lower costs.

- a. If the utility is not allowed to “bid” and the utility could potentially develop the lowest cost resource option, wouldn’t consumers be worse off with a “sub-optimal” resource option?**

HREA Response: We do not believe the utility option, as proposed by HECO where new generation will be rate-based, will be low cost. We also recognize that HECO disagrees with our assessment, and we will have to agree to disagree.

More importantly, we believe our concern about utility “self-dealing” requires that a competitive bidding process be fair and unbiased. We do not see how can happen if HECO is allowed to bid, and thus we believe “self-dealing” concerns trump the HECO’s desire to bid. Moreover, we believe that instituting competition in bidding for new generation in Hawaii will provide consumers with more competitive resource options. Specifically, more entities with more technology options are likely to respond to RFPs and go through the time-consuming exercise of preparing a bid and negotiating a contract if they know “the fix is not in,” and they are competing against other IPPs, one or more of which will win the project (s).

When a utility as uniquely dominant in the marketplace as HECO is allowed to bid, the RFP seems more like an exercise that the utility completes in order to be allowed to proceed with building the same type of fossil-fuel-fired unit that it is most familiar with owning and managing. In short, competitive bidding without utility participation is needed, at least until the market here is less concentrated, to make independent power producers take Hawaii’s small island markets seriously and to ensure that a number of solid, viable bids are received.

- b. Please explain in detail how HREA’s recommendation for not allowing an IOU bid can lead to the lowest cost resource option for consumers.**

HREA Response: See response to part a.

HECO/HREA-FIR-3 Ref: HREA Final SOP, page 11.

As illustrated in its discussion, HREA refers only to rate increase risk.

a. Does HREA define risk as only applying to rate increases?

HREA Response: Of course, there are other risks, e.g., the risks that any winning bidder may not be able to deliver its proposed generation facility on time, and that the facility will provide power as proposed and will remain solvent during its anticipated lifetime. However, we believe the primary risk to be addressed in the instant docket is the risk to ratepayers, which is measured in large part by rate increases and ongoing pass-through of fuel costs.

b. If not, what other risks does HREA believe should be addressed through the competitive bidding process

HREA Response: See our response to part a.

HECO/HREA-FIR-4 Ref: HREA Final SOP, page 15.

HREA has revised its Models 1 and 2 from its Final Statement of Position to allow the utility more involvement in conducting the review and evaluation of bids. Please explain why HREA has proposed such a revision to its original position.

HREA Response: HREA has proposed such a revision, based on the utility NOT being allowed to bid against other Offerors in a competitive bidding process for new generation. We are comfortable with the approach we have proposed in Model 1, which would allow a utility affiliate to bid, and there is an Independent Observer that reports to the PUC as we have proposed. Finally, we believe Model 1 as proposed will ensure that other bidders play on a level field with the utility affiliate. In fact, we believe this to be the essence of a true competitive bidding process.

Similarly, we are comfortable with the approach proposed in Model 2, in which neither the utility nor a utility-affiliate would be bidding.

a. Please provide a definition of Standard Offer Contract (SOC).

HREA Response: From the Wikipedia:

“A standard form contract (sometimes referred to as a **contract of adhesion** or **boilerplate** contract) is a contract between two parties that does not allow for negotiation, i.e. *take it or leave it*.⁴

Relevant to the instant docket, a SOC is a power purchase agreement (PPA) between an independent power producer (IPP) and a utility for the sale of electricity that:

1. is comprehensive, clear and transparent in its content,
2. only lacks the details of the IPP and its proposed facility, which can be readily filled in by the IPP, and
3. when the IPP fills in the blanks and signs the SOC, the utility is obligated to sign without discussion or negotiation.

Note: changes to the SOC are allowed, only if agreed to by both the IPP and the utility.

b. Please explain in detail the basis for HREA statement that if a bidder sees a model PPA instead of SOC in a solicitation package, he may be hesitant to submit a proposal.

HREA Response: Quite simply, since the “model PPA” is NOT a SOC as defined above, the bidder would have no idea how long it might take and how much it might cost him to negotiate an actual PPA based on the “model PPA.” There would also be the possibility that the bidder could later find that he could not meet technical or other requirements that were not included in the “model PPA.”

⁴ See <http://www.answers.com/topic/standard-form-contract>.

- c. **Please provide examples of other utilities and/or states that have utilized the same approach (i.e. use of a SOC rather than a PPA) suggested by HREA for cases in which the utility is seeking a long-term contractual arrangement for power supplies from new generating resources.**

HREA Response: First, we would like to note that a SOC is a type of a PPA, whereas a PPA may or may not be SOC. SOCs were implemented successfully in California in the 1980's and early 90's for the acquisition of renewable resources, such as wind, solar, biomass, geothermal and hydro, but as we understand, were phased out in late 1990's.

More recently, implementation of RPS has been most successful, in our opinion, when utilities acquire renewable resources via a competitive bidding process. Most notably, Texas has been the most successful, and other states, such as Nevada and California appear to be heading down a similar path. In Appendix B we have provided a brief comparison of power purchase agreements recently utilized by the following utilities:

1. Sierra Pacific/Nevada. Sierra Pacific and Nevada Power, subsidiaries of Sierra Pacific Resources, Las Vegas, Nevada, are Investor Owned Utilities. Both initiated a competitive solicitation to acquire renewables to meet their RPS requirements. For information and copies of the model power purchase agreements go to: <http://www.sierrapacificresources.com/company/RFPs/renewablerfp.cfm>. Subject to further review and discussion, we believe their model PPA has most of the elements we consider to be necessary for a SOC;
2. Austin Energy. More recently, Austin Energy, Austin, Texas has just released a competitive solicitation for renewables to meet the demand for renewables on Austin Energy's green marketing programs. For the details of this solicitation go to: http://waller.ci.austin.tx.us/purchase/get_ad_detail.cfm?ID=CM06100002; and
3. Lower Colorado River Authority (LCRA). LCRA, Austin, Texas has just released a competitive solicitation for renewables to meet their RPS requirements.⁵

⁵ An electronic copy of the LCRA RFP will be provided with the email transmission of this document.

HREA recognizes that there has not been agreement among the key stakeholders as to what constitutes a SOC. We must also restate our opinion that the PPAs offered by HECO to date do not meet our criteria for a SOC. Moreover, while the examples noted above appear to be working in other jurisdictions, we are not suggesting that any or all of them will result in the benefits that we ascribe to SOCs if directly applied in Hawaii.

Instead what we offer for further discussion is that a SOC, or series of SOCs, is (are) needed if we are to reduce the time and effort required to negotiate and approve PPAs for renewables, as well as other sources, and pass on those savings in time and effort to the ratepayers.

In order to resolve this conundrum, we proposed that a new collaborative process be established to develop SOCs for acquiring new generation in Hawaii. These SOCs would be included in competitive bidding solicitations, if approved by the PUC, and/or for negotiations of PPAs under our PURPA law. Finally, if this collaborative process is to succeed, whereas others have failed, we propose further that the PUC oversee this process, resolve any disagreements and approve all SOCs that are developed.

- d. Please provide copies of Standard Offer Contracts included in a competitive bidding process from other states where utilities have solicited bids for new long-term resources through a competitive bidding process.**

HREA Response: See our response to part c.

Appendix A

Contributions to System Efficiency from Distributed Generation on Oahu's Grid⁶

Scheibert Energy Company (SECO) has direct experience with a number of CHP and other DG system applications on Oahu. Todd Scheibert, President of SECO, has analyzed the impacts of these systems on the grid's efficiency and reliability. Overall, these applications have provided local improvements in power quality due to CHP and DG when waste heat is not needed. Mr. Scheibert has found that the local improvements in power quality contribute to increased system efficiency. The following are the key points of his analysis:

1. One installed CHP system with the addition of Active Power Conditioning (APC) on Oahu has improved the power quality for the local (surrounding) grid-supplied customers by freeing up capacity for additional electric power to residential and commercial air conditioner installations without the need to upsize the immediate distribution system. This installation is being duplicated at this time at several other locations and the same effects to the surrounding grid users are expected to improve local grid power to all nearby customers. Harmonics have been reduced by 80% and voltage swings 12%, power factor has been improved from 0.70 to 0.98 to unity, and substation capacity has been increased by 240 KVA due to the operation of a 110 kW CHP system that runs daily from 4:00 AM to midnight. Consequently, site load is put back onto the grid during the low load period times every day of the year. This increase in load during low load periods contributes to higher CG efficiencies;
2. CHP onsite power has been shown to reduce nuisance shut downs, when APC equipment is installed and operating. One such application has reduced CHP generator tripping from over 1,000 shut downs in 12 months to only 28 shut downs in 15 months;

⁶ Assessment provided by Todd Scheibert, Scheibert Energy Company, Honolulu, Hawaii, November 16, 2005.

3. The addition of multiple DG (including CHP) units with active power conditioning will provide the grid with voltage stability and VAR support. This will free up capacity and reduce operating temperatures on all of the customer and grid step down transformers supplying customer loads, and all of the transformers from the customer site back to the sub-station;
4. DG systems with APC reduce light flicker when the grid experiences line switching or additional CG units are energized at peak load periods;
5. DG systems with APC remove peaking currents from the local distribution system so that additional customers can be added to nearby grid locations without a need for additional distribution infrastructure;
6. Assume that existing customers with standby power generators added APC to their facilities. Then also assume that these facilities (via the Virtual Power Plant Concept proposed by the County of Maui) to reduce demand spikes during peak load periods on the grid, and then are normally shut down during off-peak times. If so, this operational cycle would help stabilize the grid load during the night-time low load periods, as the APC units would continue to run 24/7.
7. The addition of DG to the grid will also reduce the amount of waste heat and fuel currently being used by CG units that are providing operating and/or spinning reserve on Oahu and operating reserve on the outer islands. For example, SECO understands that a few existing CGs must maintain high power settings in order to keep reserve heat in the steel of the boilers to cover higher instant loading in the case that the largest CG unit trips off-line. Specifically, based on the operation of one system for 16 straight months, DG systems can free up to 2.2 MWs of grid capacity for every MW installed. Also, some existing customers have indicated interest in working with the utility under the VPP. Ideally, the best candidates would be those customers in areas on the grid, which are experiencing wave form

distortion events, low power factor and voltage drops and these events are suppressing KVA and voltage stability to nearby grid customers. The total fuel used for all power generation for Hawaii will be reduced when hundreds of the new extremely clean and higher efficient DG and waste heat utilization CHP systems are on line.

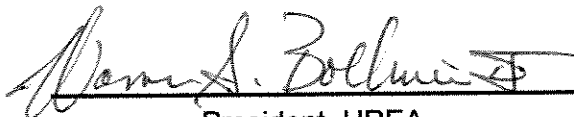
8. In summary, DG with APC will help meet new load growth and defer new CG generation requirements. In addition, if loads are better balanced by reducing customer peak loads, existing CG plants will run more efficiently and defer the need to upgrade distribution systems. Furthermore, if users of grid power activate their standby installed generation equipment via the Virtual Power Plant concept for 20 to 60 days a year of operation during peak load times of the day, the need for additional CG could be deferred, possibly for 10 or more years. Note: this assumes that APC is used to balance the loads on each building and support voltage stability to prevent utility system equipment from tripping off line due to load spikes or CG standby waste fuel requirements.

Appendix B
Comparison of Power Purchase Agreements

Utility Description/ Contract Elements	Sierra Pacific/ Nevada Power	Austin Energy (AE)	Lower Colorado River Authority
Home City, State	Las Vegas, Nevada	Austin, Texas	Austin, Texas
Type of Utility	Investor Owned	Municipal	Conservation and Reclamation District
Current Procurement Process	Competitive Bidding	Competitive Bidding	Competitive Bidding
Capacity Sought	>30 kW	Not specified	>20 MW
Type Contracts Offered Notes: B = Biomass; BG = Biogas G = Geothermal W = Water Power	Pro-Forma PPA: <ul style="list-style-type: none">o Firm power (B, BG, G, and W)o Windo Solar	<ul style="list-style-type: none">o No Specific Formato Did provide Standard Terms and Conditions	<ul style="list-style-type: none">o No Specific Formato Did provide overview for wind-only PPAs
Contract Format: o Glossary of Terms o Contract Term o Bid-In Price Format o Who Owns Credits o Ownership of Transmission Lines/Interconnection Facilities o Performance Standards/ Fault-Ride Through Requirements o Dispute Resolution o Amendments	 o Yes o 20 years o Flat Rate Price and/or Optional 1% escalator o Buyer (conveyed in sale of electricity to meet RPS) o Not specified o Not specified o Arbitration if needed/greed by both Parties o By Mutual Agreement	 o Yes o 20 years o Firm price o Not specified – AE not required to meet RPS o Not specified o Not specified o If needed, mediator selected by the County o Not specified	 o No o 15 years o Annual Fixed Price o Seller with option to convey to Buyer o Ownership not specified. Cost is Seller's responsibility o Not specified o Not specified o Not specified

END OF HREA's RESPONSE TO HECO INFORMATION REQUESTS

DATED: November 22, 2005, Honolulu, Hawaii


President, HREA

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing response to Final Information Requests upon the following parties by causing a copy hereof to be hand-delivered or mailed, postage prepaid, and properly addressed the number of copies noted below to each such party:

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Dated: November 22, 2005


President, HREA